

**Area of impact: Arts, entertainment and leisure**

**3. (a) Define the term *resolution*. [2 marks]**

- resolution is the number of pixels on a display monitor
- the resolution of a digital image is defined as the number of pixels it contains
- ppi
- density of pixels / number of pixels
- dpi.

*Accept dpi as many sites mention this but this is not the expected response.*

*Award [1 mark] for “number of pixels”.*

*Award [1 mark] for mentioning “on a display monitor” or “contained in a digital image”.*

**(b) Digital TV broadcasters are able to provide interactive services. Describe *two* interactive services that could be provided with digital TV. [4 marks]**

- select different camera angles – allow viewer to change the angle to watch a football match
- video on demand – allow viewer to request/select a film and begin watching it on demand
- managing film watching – pause, review, fast forward, skipping commercials
- some programs may receive text messages from viewers and content is changed according to key words in the message
- viewer participation in games – answering questions broadcasted or guess the end of a film
- surveys and polls
- interactive program guides
- providing deaf and hearing impaired people with a text version of dialogue (*as long as there is evidence that the deaf person had to choose (interact) in order for a service to be provided*)
- interactive multiplayer games – (play classic games like UNO and Monopoly with friends and family. Try your hand at poker or blackjack. Test your wits with puzzle and word games. With an Unlimited Pass, you can play as many games as you want, 24/7. Whatever your game, you'll find it in *GSN Game Lounge* – [http://www.directv.com/DTVAPP/content/premiums/game\\_lounge](http://www.directv.com/DTVAPP/content/premiums/game_lounge))
- interactive customer support – (provides complete end-to-end solutions that not only include the front-end software, enabling viewers to interact, but also all required back-end tools for updating, deploying and operating your interactive services – <http://www.zappware.com/about/technology.html>).

*Award [1 mark] for each interactive service identified up to a maximum of [2 marks].*

*Award [1 mark] each for the relevant description up to a maximum of [2 marks].*

- (c) **Explain *two* ways in which a domestic installation such as a digital TV can communicate with the digital provider.** **[4 marks]**

- telephone – satellite viewers return information to the broadcaster via their regular telephone lines. They are charged for this service on their regular telephone bill
- ADSL – using the Internet connection users can communicate using a special control
- digital TV cable and set box with return capabilities – and the TV remote control user can select choices from screen or text messages.

*(Do **not** accept: antenna (does not allow for user to send data back to broadcaster).)*

**[1 mark]**

*A limited response that indicates very little understanding of the topic.*

**[2–3 marks]**

*A reasonable description of how the domestic installation can communicate with the provider but the answer may lack appropriate reasoning at the bottom end of the band. **[2 marks]** for two ways identified or one described. **[3 marks]** for two ways described.*

**[4 marks]**

*A clear, detailed explanation giving reasons of two ways how the domestic installation communicates with the provider.*

- (d) **To what extent is the growth of video clips on the Internet overtaking the need for digital TV?** **[10 marks]**

- quality of videos over digital TV is high while videos on the Internet tend to have lower resolution to allow for fast download
- streaming of videos over the Internet may be slow while digital TV provides films without delay while broadcasting
- downloading of videos may take several hours over the Internet – films on digital TV are there on demand
- many Internet videos are there for free, user only pays Internet access – digital TV requires a monthly fee (which users pay as well as paying their Internet provider fee)
- wider variety of films are available over the Internet – digital TV has a selection of films
- Internet has been around longer – fewer changes in hardware are expected – cable set-top boxes with better interactive capabilities are being introduced forcing users to spend money to upgrade their digital TV capabilities
- online video availability – will overtake digital TV
- viewers may prefer larger screen TVs even though the same video may be obtained and seen in a laptop or computer monitor.

*In part (d) of this question it is expected there will be a balance in the ITGS terminology between IT technical terminology and the terminology related to social and ethical impacts.*

*Please see generic markband information sheet on page 21.*